SEEKING PUBLIC INPUT ON PROPOSED ACTION:
2005 Idaho Grasshopper and Mormon Cricket Suppression Program

Purpose and Need-- Grasshoppers and Mormon crickets are part of a vast complex of native rangeland insects that play important roles in nutrient recycling by reducing plant material through their digestive process, and serving as food for other animal species. However, like many insects, they have the potential for sudden and explosive population increases, resulting in outbreaks. When outbreaks occur, grasshoppers and Mormon crickets can destroy the forage needed by wildlife and livestock. By consuming plants, they can reduce the shelter habitat for rangeland birds, mammals and reptiles. They may consume threatened and endangered plants. Outbreak populations can also invade cropland and damage or destroy cultivated crops. Approximately 40 species of grasshoppers (including Mormon crickets) occur in Idaho. Of these, five species reach outbreak status in limited areas on a fairly frequent basis. They are: migratory grasshopper, valley grasshopper, bigheaded grasshopper, clearwinged grasshopper, and Mormon cricket.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service (APHIS) conducts surveys to determine the density and species composition of grasshopper populations on rangelands. In Idaho, surveys can begin as early as February and may extend into September each year. Surveys can determine current population densities and trends, but they do not provide precise predictive capabilities for coming years.

Outbreaks cannot reliably be prevented with currently available rangeland management practices in Idaho, so when outbreaks occur, they may require direct intervention to suppress the population density. APHIS has authority under The Plant Protection Act of 2000 (7 USC §7701 *et seq*.) to conduct the suppression program. Subject to availability of funds and upon the request of the land manager, APHIS is charged to provide a rapid and effective response to outbreaks. The strategies used by APHIS for grasshopper and Mormon cricket suppression involve the use of insecticides which may be applied by air or ground.

History-- In the mid-20th century APHIS conducted large area grasshopper suppression programs in Idaho and other western states. The goal of those programs was to reduce grasshopper populations to the greatest extent possible. Persistent, broad spectrum insecticides were applied to blocks of rangeland that exceeded tens of thousands of acres. By the 1970's persistent insecticides were replaced with new generations of non-persistent, broad spectrum insecticides. Now, non-persistent selective insecticides are available for use in most cases, and the goal is to reduce the number of grasshoppers and Mormon crickets to levels that no longer pose a threat to agricultural lands and natural resources. The maximum acreage APHIS ever treated in Idaho was in 1985, when approximately six million acres were treated, primarily with malathion. Since 1995, APHIS has not treated more than 50,000 acres in any year in Idaho. In recent years APHIS has treated the following acreages for grasshoppers and Mormon crickets:

1999- 47,342 acres	2001- 420 acres	2003- 25,290 acres
2000- 1,100 acres	2002- 590 acres	2004- 21,465 acres

Annual reports are available at: http://www.agri.state.id.us/plants/GHTOC.htm

To meet National Environmental Policy Act requirements, APHIS published Rangeland Grasshopper and Mormon Cricket Suppression Program Final Environmental Impact Statement – 2002 available at http://www.aphis.usda.gov/ppd/es/gh.html. Additionally, APHIS prepared four Environmental Assessments for grasshopper and Mormon cricket suppression programs in Idaho in 2004. These are available at http://www.agri.state.id.us/plants/GHTOC.htm.

Proposed Action-- Subject to available funding and stipulations of the Plant Protection Act, APHIS would respond to requests from land managers for grasshopper/Mormon cricket suppression projects. APHIS would conduct evaluations to determine if populations warrant suppression. The evaluation

would include species composition, population density, stage of grasshopper development, value of resources threatened by the grasshopper outbreak, and environmental risks associated with treatments.

The project area is federally managed rangeland, primarily in the Great Basin Ecoregion. The elevation varies from below 3000 feet in areas along the Snake River Plain to nearly 8000 feet in mountainous regions. Essentially all of the area drains to the Pacific via the Snake River and its tributaries. Except for the Snake and its major tributaries, streams in the area are generally intermittent. The plains and foothills are semi-arid sagebrush steppe. The rangelands are utilized for cattle and sheep grazing. They provide habitat for native and introduced game and non-game animal species. They are in an accelerated state of ecological change due to invasion by exotic plant species, changes in fire patterns, and intervention by humans.

A limited number of insecticidal treatment options are available to APHIS. They include up to:

16.0 fl. oz. carbaryl spray per acre (0.50 lb active ingredient)
10 pounds 5% carbaryl bait per acre (0.50 lb active ingredient)
8.0 fl. oz. malathion spray per acre (0.62 lb active ingredient)
1.0 fl. oz. diflubenzuron spray per acre (0.016 lb active ingredient)

Only one insecticide would be used in a treatment and no more than one treatment per year would normally be applied at any location.

Alternatives currently under consideration

Alternative 1. No Action:

APHIS would not conduct insecticide treatments or any other grasshopper/Mormon cricket suppression measures.

Alternative 2. Carbaryl Bait Applications to Suppress Grasshopper/Mormon cricket populations:

Upon evaluation of the population density and environmental conditions, APHIS might conduct insecticide treatments with carbaryl bait to suppress grasshopper/Mormon cricket outbreaks.

Alternative 3. Insecticide Bait or Spray Applications to Suppress Grasshopper/Mormon cricket populations:

Upon evaluation of the population density and environmental conditions, APHIS might conduct insecticide treatments with carbaryl bait, or diflubenzuron spray, or malathion spray to suppress grasshopper/Mormon cricket outbreaks.

Discussion of Alternatives-- Although APHIS is mandated under the Plant Protection Act to control grasshoppers and Mormon crickets, it is important that public expenditures are used in a cost effective and environmentally safe way. Utilization of Alternative 3 would allow the most cost effective and biologically sound options to be selected whenever treatments are justified. However, over the past several years a few groups have sued or threatened suit against APHIS when use of liquid sprays are proposed.

Carbaryl bait is the most expensive and logistically demanding option currently available to APHIS. It is long-lasting and will have some lethal effect on almost all target species of grasshoppers. It can be highly effective against Mormon crickets because of their habits of marching across broad stretches of rangeland and their flightless condition. It is slow acting on some species of grasshoppers. It is applied as solid bait pellets, granules or flakes from aircraft or ground application units. It has to be ingested to be fatal to insects and is intermediate between diflubenzuron and malathion in the range of insects that it will kill.

When ingested, it disrupts the nervous system of the consumer. It may control immature and adult grasshoppers and Mormon crickets.

Diflubenzuron spray is the most pest-specific, lowest toxicity, and lowest cost option currently available to APHIS. It is applied as a spray and is effective on insects which eat the foliage where it settles. It is essentially nontoxic to adult arthropods and species other than arthropods. It disrupts the formation of chitin in the exoskeleton of arthropods and therefore kills insects or other arthropods which have ingested the diflubenzuron, have molted and are forming a new exoskeleton or shell. Diflubenzuron must be used while the target is immature—approximately up until June 1 for Mormon crickets and July 1 for grasshoppers in most of the area under consideration. In Idaho, US Fish and Wildlife Service has indicated a preference for diflubenzuron whenever possible as the agent of choice for grasshopper/Mormon cricket suppression. Diflubenzuron is essentially nontoxic to honey bees and most wild pollinators.

Malathion spray is the fastest acting, and least logistically demanding option, but it is the most broad spectrum insecticide currently available to APHIS. It is applied as a spray and kills insects and other arthropods on contact. It works by disrupting the nervous system of immature and adult insects. It will control adult and immature grasshoppers and Mormon crickets.

Lawsuits and threatened lawsuits filed by plaintiffs in 2000-2004 have led APHIS to use only carbaryl bait for the grasshopper/Mormon cricket suppression program in Idaho since 2000. In the lawsuits and threatened lawsuits, plaintiffs cited a recent decision by the 9th Circuit Court of Appeals, where the judge ruled that a federal agency violated the Clean Water Act by failing to obtain a National Pollution Discharge Elimination System (NPDES) permit for its pesticide spray program on forest lands in the Northwest.

Plaintiffs have indicated that the Idaho grasshopper/Mormon cricket suppression program must have an NPDES permit to comply with that decision. The Environmental Protection Agency (EPA) is responsible for issuing these permits, but EPA has issued guidance that the permits may not be necessary for actions similar to the proposed program. Therefore, APHIS must consider in its decision-making process, the decision in the 9th Circuit and the conflicting position of EPA.

If APHIS should select Alternative 3, it is possible that the program would be delayed or shut down during litigation and APHIS could incur litigation costs, including legal fees and costs of the plaintiffs. If APHIS should select Alternative 2, the program will not be cost effective and may fail to control outbreaks in a timely and efficient manner. If APHIS should select Alternative 1, severe losses to crops and natural resources might occur; and widespread, uncoordinated treatments might be applied by members of the public.

Public Comments

Please submit comments to:

USDA APHIS PPQ
9134 West Blackeagle Drive
Boise ID 83709

They may also be faxed to 208-378-5794 or e-mailed to idgrasshopper@aphis.usda.gov. Comments received by November 15, 2004 will be most helpful, and all comments received before the completion of the environmental analysis/analyses will be considered. Comments received in response to this proposed action will be available for public inspection at our office.